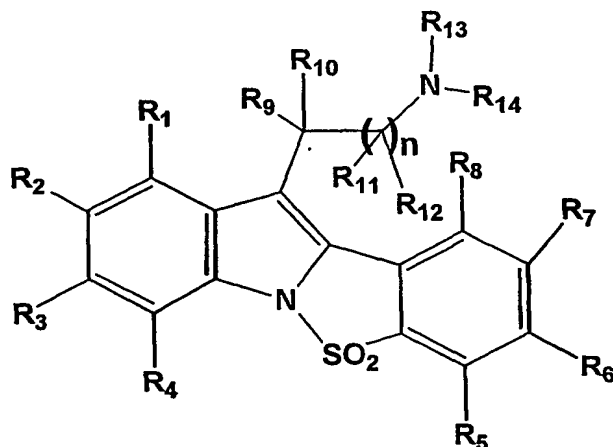


We Claim,

1. A compound of the general formula (I),



General Formula (I)

its derivatives, its analogs, its tautomeric forms, its stereoisomers, its polymorphs, its pharmaceutically acceptable salts and solvates,

wherein R₁, R₂, R₃, R₄, R₅, R₆, R₇, R₈, R₉, R₁₀, R₁₁ and R₁₂ may be same or different and each independently represent hydrogen, halogen, oxo, thio, perhaloalkyl, hydroxy, amino, nitro, cyano, formyl, amidino, guanidino, substituted or unsubstituted groups such as linear or branched (C₁-C₁₂)alkyl, (C₂-C₁₂)alkenyl, (C₂-C₁₂)alkynyl, (C₃-C₇)cycloalkyl, (C₃-C₇)cycloalkenyl, bicycloalkyl, bicycloalkenyl, (C₁-C₁₂)alkoxy, cyclo(C₃-C₇)alkoxy, aryl, aryloxy, aralkyl, aralkoxy, heterocyclyl, heteroaryl, heterocyclylalkyl, heteroaralkyl, heteroaryloxy, heteroaralkoxy, heterocyclylalkyloxy, acyl, acyloxy, acylamino, monoalkylamino, dialkylamino, arylamino, diarylamino, aralkylamino, alkoxycarbonyl, aryloxy carbonyl, aralkoxycarbonyl, heterocyclylalkoxycarbonyl, heteroaryloxy carbonyl, hydroxyalkyl, aminoalkyl, monoalkylaminoalkyl, dialkylaminoalkyl, alkoxyalkyl, aryloxyalkyl, aralkoxyalkyl, alkylthio, thioalkyl, alkoxycarbonylamino, aryloxy carbonylamino, aralkyloxy carbonylamino, aminocarbonylamino, alkylaminocarbonylamino, dialkylaminocarbonylamino, alkylamidino, alkylguanidino, dialkylguanidino, hydrazino, hydroxylamino, carboxylic acid and its derivatives, sulfonic acids and its derivatives, phosphoric acid and its derivatives; or the adjacent groups like R₁ and R₂ or R₂ and R₃ or R₃ and R₄ or R₅ and R₆ or R₆ and R₇ or R₇ and R₈ together with carbon atoms to which they are attached may form a 5, 6, or 7 membered ring, which may further optionally contain one or more double bonds and/or one or more heteroatoms such as the group "Oxygen", "Nitrogen", "Sulfur" or "Selenium" and combinations of double bond and heteroatoms; or R₉ and R₁₀ or R₁₁ and R₁₂ together represent double bond attached to "Oxygen" or "Sulfur"; or R₉ and R₁₀ or R₁₁ and R₁₂

together with the carbon atoms to which they are attached may form a 3, 4, 5, or 6 membered ring, which may further optionally contain one or more double bonds, and/or one or more heteroatoms such as the group "Oxygen", "Nitrogen", "Sulfur" or "Selenium" and also includes combination of one or more double bonds with "heteroatoms", as above defined;

R₁₃ and R₁₄ may be same or different and each independently represents hydrogen, substituted or unsubstituted groups such as linear or branched (C₁-C₁₂)alkyl, (C₂-C₁₂)alkenyl, (C₂-C₁₂)alkynyl, (C₂-C₁₂)alkanoyl (C₃-C₇)cycloalkyl, (C₃-C₇)cycloalkenyl, bicycloalkyl, bicycloalkenyl, aryl, aralkyl, heteroaryl, heterocyclalkyl; optionally R₁₃ and R₁₄ along with the nitrogen atom, may form a 3, 4, 5, 6 or 7-membered heterocyclic ring, wherein the ring may be further substituted, and it may have either one, two or three double bonds or "additional heteroatoms", as defined above; and

"n" is an integer ranging from 1 to 8, preferably 1 to 4, and represents may be either linear or branched carbon chain.

2. A compound according to Claim -1, which is selected from the group consisting of:

6-(2-N,N-Dimethylaminoethyl)benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

4-Bromo-6-(2-N,N-dimethylaminoethyl)benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

4-Chloro-6-(2-N,N-dimethylaminoethyl)-benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

6-(2-N,N-Dimethylaminoethyl)-4-fluorobenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

6-(2-N,N-Dimethylaminoethyl)-4-methylbenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

6-(2-N,N-Dimethylaminoethyl)-4-methylbenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide hydrochloride salt;

6-(2-N,N-Dimethylaminoethyl)-4-methylbenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide maleate salt;

6-(2-N,N-Dimethylaminoethyl)-4-methylbenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide D,L-malic acid salt;

6-(2-N,N-Dimethylaminoethyl)-4-methylbenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide oxalate salt;

6-(2-N,N-Dimethylaminoethyl)-4-methylbenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide citrate salt;

6-(2-N,N-Dimethylaminoethyl)-4-methoxybenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

6-(2-N,N-Dimethylaminoethyl)-8-methoxybenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

4-Bromo-6-(2-N,N-dimethylaminoethyl)-8-methoxybenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

4-Chloro-6-(2-N,N-dimethylaminoethyl)-8-methoxybenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

6-(2-N,N-Dimethylaminoethyl)-4-fluoro-8-methoxybenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

6-(2-N,N-Dimethylaminoethyl)-4-methyl-8-methoxybenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

6-(2-N,N-Dimethylaminoethyl)-4,8-dimethoxybenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

6-(2-N,N-Dimethylaminoethyl)-2-ethylbenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

2-Chloro-6-(2-N,N-dimethylaminoethyl)benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

2,4-Dichloro-6-(2-N,N-dimethylaminoethyl)-benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

2,3-Dichloro-6-(2-N,N-dimethylaminoethyl)-benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

5-Chloro-6-(2-N,N-dimethylaminoethyl)-2-methylbenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

2,4,5-Trichloro-6-(2-N,N-dimethylaminoethyl)-benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

6-(2-N,N-Dimethylaminoethyl)-2,4-difluorobenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

6-(2-N,N-dimethylaminoethyl)-4-fluoro-8-methylbenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

2,4-Difluoro-6-(2-N,N-dimethylaminoethyl)-8-methylbenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

6-(2-N,N-Dimethylaminoethyl)-2-methoxybenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

6-(2-N,N-Dimethylaminoethyl)-2,8-dimethoxybenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

6-(2-N,N-Dimethylaminoethyl)-8-methylbenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

6-(3-N,N-Dimethylamino-1-hydroxyprop-1-yl)benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

4-Bromo-6-(3-N,N-Dimethylamino-1-hydroxyprop-1-yl)benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

6-(3-N,N-Dimethylamino-1-hydroxyprop-1-yl)-8-methoxybenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

6-(3-N,N-Dimethylamino-1-hydroxyprop-1-yl)-8-methylbenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

4-Bromo-6-(3-N,N-dimethylamino-1-hydroxyprop-1-yl)-8-methoxybenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

6-[2-(4-Methylpiperazin-1-yl)ethyl]benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

6-[2-Morpholin-4-ylethyl]benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

6-(2-Pyrrolidin-1-ylethyl)benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

6-(2-Piperidin-1-yl)ethyl]benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

4-Bromo-6-[2-morpholin-4-ylethyl]benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

4-Bromo-6-(2-pyrrolidin-1-ylethyl)benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;

4-Bromo-6-[2-(4-methylpiperazin-1-yl)ethyl]benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;
6-(3-(Piperidin-1-yl)-1-hydroxyprop-1-yl)benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;
6-(3-(Piperidin-1-yl)-1-hydroxyprop-1-yl)-8-methoxybenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;
4-Bromo-6-(3-(piperidin-1-yl)-1-hydroxyprop-1-yl)benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;
4-Bromo-6-(3-(piperidin-1-yl)-1-hydroxyprop-1-yl)-8-methoxybenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;
6-(3-(Pyrrolidin-1-yl)-1-hydroxyprop-1-yl)benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;
6-(3-(Pyrrolidin-1-yl)-1-hydroxyprop-1-yl)-8-methoxybenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;
6-(2-(N,N-Diethylamino)-2-methylethyl)benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;
6-(2-(N,N-Dimethylamino-1-hydroxy-1-yl)benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;
4-Bromo-6-(2-(N,N-Dimethylamino-1-hydroxy-1-yl)benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;
6-(2-(N,N-Dimethylaminoethyl)-2,4-difluoro-8-Methoxybenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;
6-(2-(N,N-Dimethylamino-2-methylethyl)benzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;
4-Chloro-6-(2-(N,N-Dimethylaminoethyl)-8-methylbenzo[d]isothiazolo[3,2-a]indol-S,S-dioxide;
8-(2-(N,N-Dimethylaminoethyl)benzo[d]isothiazolo[3,2-a]benzo(g)indol-S,S-dioxide; and
its stereoisomers, its N-oxides, its polymorphs, its pharmaceutically acceptable salts and solvates.

3. A pharmaceutical composition comprising either of a pharmaceutically acceptable carrier, diluent/s, excipient/s or solvates along with a therapeutically effective amount of a compound according to Claim-1, its derivatives, its analogs, its tautomeric forms, its stereoisomers, its geometric forms, its N-oxides, its polymorphs, its pharmaceutically acceptable salts, or solvates.

4. A pharmaceutical composition according to Claim-3, in the form of a tablet, capsule, powder, lozenges, suppositories, syrup, solution, suspension or injectable, administered in, as a single dose or multiple dose units.

5. Use of compound of general formula (I), as defined in Claim-1 or a pharmaceutical composition as defined in Claim-3 for preparing medicaments.

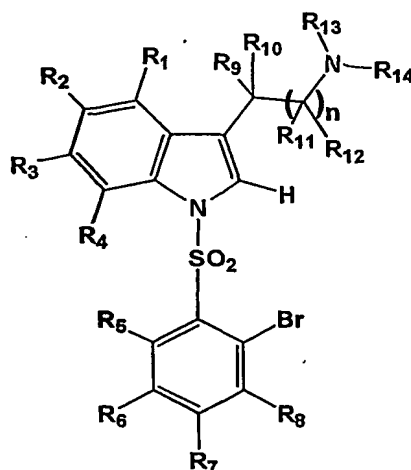
6. Use of compound of general formula (I), as defined in Claim-1 or a pharmaceutical composition as defined in Claim-3 for the treatment where a modulation of 5-HT activity is desired.
7. Use of a compound as claimed in Claim-1 for the manufacture of a medicament for the treatment and/or prevention of clinical conditions for which a selective action on 5-HT receptors is indicated.
8. Use of a compound as claimed in Claim-1 for the treatment and/or prevention of clinical conditions such as anxiety, depression, convulsive disorders, obsessive-compulsive disorders, migraine headache, cognitive memory disorders, ADHD (Attention Deficient Disorder/ Hyperactivity Syndrome), personality disorders, psychosis, paraphrenia, psychotic depression, mania, schizophrenia, schizophreniform disorders, withdrawal from drug abuse, panic attacks, sleep disorders and also disorders associated with spinal trauma and /or head injury.
9. Use of a compound as claimed in Claim-1 for the treatment of mild cognitive impairment and other neurodegenerative disorders like Alzheimer's disease, Parkinsonism and Huntington's chorea.
10. Use of a compound as claimed in Claim-1 for the treatment of certain GI (Gastrointestinal) disorders such as IBS (Irritable bowel syndrome) or chemotherapy induced emesis.
11. Use of a compound as claimed in Claim-1 to reduce morbidity and mortality associated with the excess weight.
12. Use of a radiolabelled compound as claimed in Claim-1, as a diagnostic tool for modulating 5-HT receptor function.
13. Use of a compound as claimed in Claims 1 in combination with a 5-HT re-uptake inhibitor, and / or a pharmaceutically acceptable salt thereof.

14. A compound of the general formula (1), its derivatives, its analogs, its tautomeric forms, its stereoisomers, its polymorphs, its pharmaceutically acceptable salts and its pharmaceutically acceptable solvates for preparing a medicament.
15. A method for the treatment and/or prophylaxis of clinical conditions such as anxiety, convulsive disorders, obsessive-compulsive disorders, migraine headache, cognitive memory disorders, ADHD (Attention Deficient Disorder/ Hyperactivity Syndrome), personality disorders, psychosis, paraphrenia, psychotic depression, mania, schizophrenia, schizophreniform disorders, withdrawal from drug abuse, panic attacks, sleep disorders and also disorders associated with spinal trauma and /or head injury which comprises administering to a patient in need thereof, an effective amount of a compound of general formula (I) as claimed in Claim-1.
16. A method for the treatment and/or prophylaxis of mild cognitive impairment and other neurodegenerative disorders like Alzheimer's disease, Parkinsonism and Huntington's chorea which comprises administering to a patient in need thereof, an effective amount of a compound of general formula (I) as claimed in Claim-1.
17. A method for the treatment of certain GI (Gastrointestinal) disorders such as IBS (Irritable bowel syndrome) or chemotherapy induced emesis using a compound of general formula (I) as claimed in Claim-1.
18. A method to reduce morbidity and mortality associated with the excess weight using a compound of general formula (I) as claimed in Claim-1.
19. A process for the preparation of a compound of general formula (I), wherein R_1 , R_2 , R_3 , R_4 , R_5 , R_6 , R_7 , R_8 , R_9 , R_{10} , R_{11} and R_{12} may be same or different and each independently represent hydrogen, halogen, oxo, thio, perhaloalkyl, hydroxy, amino, nitro, cyano, formyl, amidino, guanidino, substituted or unsubstituted groups such as linear or branched (C_1-C_{12}) alkyl, (C_2-C_{12}) alkenyl, (C_2-C_{12}) alkynyl, (C_3-C_7) cycloalkyl, (C_3-C_7) cycloalkenyl, bicycloalkyl, bicycloalkenyl, (C_1-C_{12}) alkoxy, cyclo (C_3-C_7) alkoxy, aryl, aryloxy, aralkyl, aralkoxy, heterocyclyl, heteroaryl, heterocyclylalkyl, heteroaralkyl, heteroaryloxy, heteroaralkoxy, heterocyclylalkyloxy, acyl, acyloxy, acylamino, monoalkylamino, dialkylamino, arylamino, diarylamino, aralkylamino, alkoxycarbonyl, aryloxycarbonyl, aralkoxycarbonyl, heterocyclylalkoxycarbonyl, heteroaryloxycarbonyl, hydroxyalkyl,

aminoalkyl, monoalkylaminoalkyl, dialkylaminoalkyl, alkoxyalkyl, aryloxyalkyl, aralkoxyalkyl, alkylthio, thioalkyl, alkoxycarbonylamino, aryloxycarbonylamino, aralkyloxycarbonylamino, aminocarbonylamino, alkylaminocarbonylamino, dialkylaminocarbonylamino, alkylamidino, alkylguanidino, dialkylguanidino, hydrazino, hydroxylamino, carboxylic acid and its derivatives, sulfonic acids and its derivatives, phosphoric acid and its derivatives; or the adjacent groups like R₁ and R₂ or R₂ and R₃ or R₃ and R₄ or R₅ and R₆ or R₆ and R₇ or R₇ and R₈ together with carbon atoms to which they are attached may form a 5, 6, or 7 membered ring, which may further optionally contain one or more double bonds and/or one or more heteroatoms such as the group "Oxygen", "Nitrogen", "Sulfur" or "Selenium" and combinations of double bond and heteroatoms; or R₉ and R₁₀ or R₁₁ and R₁₂ together represent double bond attached to "Oxygen" or "Sulfur"; or R₉ and R₁₀ or R₁₁ and R₁₂ together with the carbon atoms to which they are attached may form a 3, 4, 5, or 6 membered ring, which may further optionally contain one or more double bonds, and/or one or more heteroatoms such as the group "Oxygen", "Nitrogen", "Sulfur" or "Selenium" and also includes combination of one or more double bonds with "heteroatoms", as above defined;

R₁₃ and R₁₄ may be same or different and each independently represents hydrogen, substituted or unsubstituted groups such as linear or branched (C₁-C₁₂)alkyl, (C₂-C₁₂)alkenyl, (C₂-C₁₂)alkynyl, (C₂-C₁₂)alkanoyl (C₃-C₇)cycloalkyl, (C₃-C₇)cycloalkenyl, bicycloalkyl, bicycloalkenyl, aryl, aralkyl, heteroaryl, heterocyclylalkyl; optionally R₁₃ and R₁₄ along with the nitrogen atom, may form a 3, 4, 5, 6 or 7-membered heterocyclic ring, wherein the ring may be further substituted, and it may have either one, two or three double bonds or "additional heteroatoms", as defined above; and

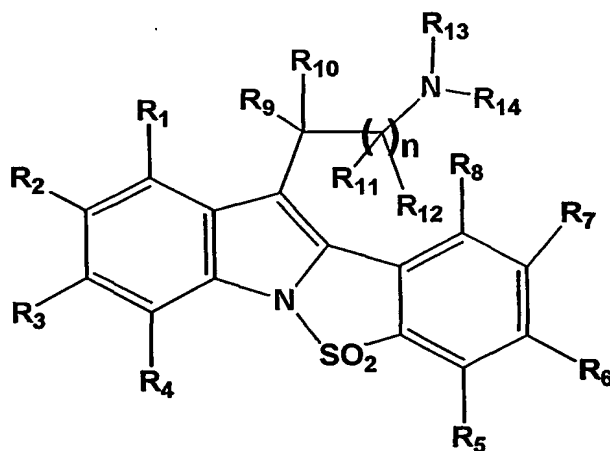
"n" is an integer ranging from 1 to 8, preferably 1 to 4, and represents may be either linear or branched carbon chain; which comprises of cyclizing, a compound of formula (II) given below,



(II)

wherein R_1 , R_2 , R_3 , R_4 , R_5 , R_6 , R_7 , R_8 , R_9 , R_{10} , R_{11} , R_{12} , R_{13} , R_{14} and "n", wherein all the symbols are as defined above, using a Pd(0) or Pd (II) derivative as a catalyst.

20. A process for the preparation of a compound of general formula (I),



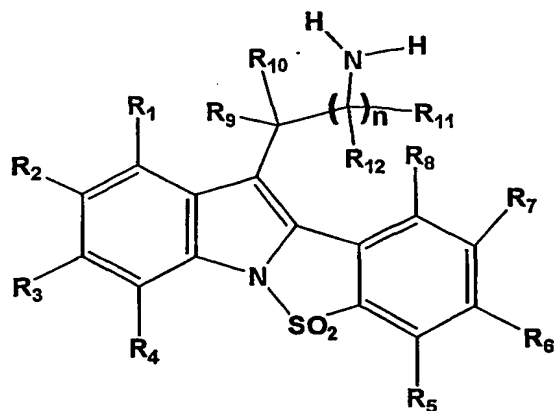
(I)

wherein R_1 , R_2 , R_3 , R_4 , R_5 , R_6 , R_7 , R_8 , R_9 , R_{10} , R_{11} and R_{12} may be same or different and each independently represent hydrogen, halogen, oxo, thio, perhaloalkyl, hydroxy, amino, nitro, cyano, formyl, amidino, guanidino, substituted or unsubstituted groups such as linear or branched (C₁-C₁₂)alkyl, (C₂-C₁₂)alkenyl, (C₂-C₁₂)alkynyl, (C₃-C₇)cycloalkyl, (C₃-C₇)cycloalkenyl, bicycloalkyl, bicycloalkenyl, (C₁-C₁₂)alkoxy, cyclo(C₃-C₇)alkoxy, aryl, aryloxy, aralkyl, aralkoxy, heterocyclyl, heteroaryl, heterocyclalkyl, heteroaralkyl, heteroaryloxy, heteroaralkoxy, heterocyclalkyloxy, acyl, acyloxy, acylamino, monoalkylamino,

dialkylamino, arylamino, diarylamino, aralkylamino, alkoxycarbonyl, aryloxy carbonyl, aralkoxycarbonyl, heterocyclalkoxycarbonyl, heteroaryloxy carbonyl, hydroxyalkyl, aminoalkyl, monoalkylaminoalkyl, dialkylaminoalkyl, alkoxyalkyl, aryloxyalkyl, aralkoxyalkyl, alkylthio, thioalkyl, alkoxycarbonylamino, aryloxy carbonylamino, aralkyloxy carbonylamino, aminocarbonylamino, alkylaminocarbonylamino, dialkylamino carbonylamino, alkylamidino, alkylguanidino, dialkylguanidino, hydrazino, hydroxylamino, carboxylic acid and its derivatives, sulfonic acids and its derivatives, phosphoric acid and its derivatives; or the adjacent groups like R_1 and R_2 or R_2 and R_3 or R_3 and R_4 or R_5 and R_6 or R_6 and R_7 or R_7 and R_8 together with carbon atoms to which they are attached may form a 5, 6, or 7 membered ring, which may further optionally contain one or more double bonds and/or one or more heteroatoms such as the group "Oxygen", "Nitrogen", "Sulfur" or "Selenium" and combinations of double bond and heteroatoms; or R_9 and R_{10} or R_{11} and R_{12} together represent double bond attached to "Oxygen" or "Sulfur"; or R_9 and R_{10} or R_{11} and R_{12} together with the carbon atoms to which they are attached may form a 3, 4, 5, or 6 membered ring, which may further optionally contain one or more double bonds, and/or one or more heteroatoms such as the group "Oxygen", "Nitrogen", "Sulfur" or "Selenium" and also includes combination of one or more double bonds with "heteroatoms", as above defined;

R_{13} and R_{14} may be same or different and each independently represents hydrogen, substituted or unsubstituted groups such as linear or branched (C_1-C_{12}) alkyl, (C_2-C_{12}) alkenyl, (C_2-C_{12}) alkynyl, (C_2-C_{12}) alkanoyl, (C_3-C_7) cycloalkyl, (C_3-C_7) cycloalkenyl, bicycloalkyl, bicycloalkenyl, aryl, aralkyl, heteroaryl, heterocyclalkyl; optionally R_{13} and R_{14} along with the nitrogen atom, may form a 3, 4, 5, 6 or 7-membered heterocyclic ring, wherein the ring may be further substituted, and it may have either one, two or three double bonds or "additional heteroatoms", as defined above; and

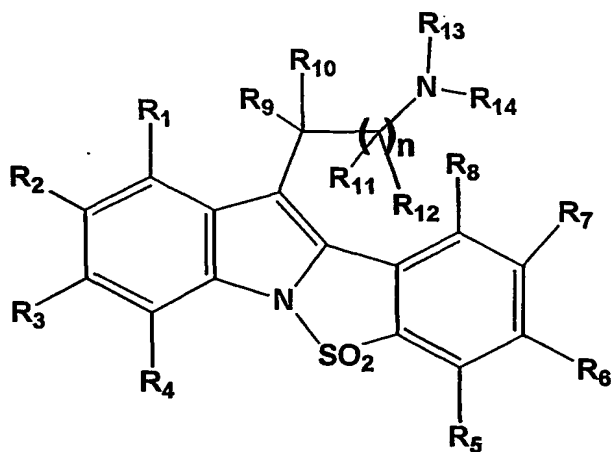
"n" is an integer ranging from 1 to 8, preferably 1 to 4, and represents may be either linear or branched carbon chain; which comprises of reacting a compound (III) given below,



(III)

wherein R_1 , R_2 , R_3 , R_4 , R_5 , R_6 , R_7 , R_8 , R_9 , R_{10} , R_{11} , R_{12} and "n" are as defined above, with a suitable alkylating agent such as $R_{13}X$ or $R_{14}X$ or $XR_{13}R_{14}X$ in successive steps or in one step, wherein X is good leaving group such as halogen and hydroxyl.

21. A process for the preparation of a compound of general formula (I),

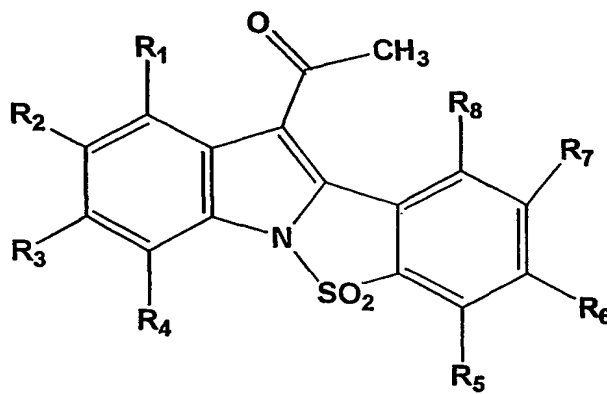


wherein R_1 , R_2 , R_3 , R_4 , R_5 , R_6 , R_7 , R_8 , R_9 , R_{10} , R_{11} and R_{12} may be same or different and each independently represent hydrogen, halogen, oxo, thio, perhaloalkyl, hydroxy, amino, nitro, cyano, formyl, amidino, guanidino, substituted or unsubstituted groups such as linear or branched (C_1-C_{12}) alkyl, (C_2-C_{12}) alkenyl, (C_2-C_{12}) alkynyl, (C_3-C_7) cycloalkyl, (C_3-C_7) cycloalkenyl, bicycloalkyl, bicycloalkenyl, (C_1-C_{12}) alkoxy, cyclo (C_3-C_7) alkoxy, aryl, aryloxy, aralkyl, aralkoxy, heterocyclyl, heteroaryl, heterocyclylalkyl, heteroaralkyl, heteroaryloxy, heteroaralkoxy, heterocyclylalkyloxy, acyl, acyloxy, acylamino, monoalkylamino, dialkylamino, arylamino, diarylamino, aralkylamino, alkoxycarbonyl, aryloxycarbonyl, aralkoxycarbonyl, heterocyclylalkoxycarbonyl, heteroaryloxycarbonyl, hydroxyalkyl,

aminoalkyl, monoalkylaminoalkyl, dialkylaminoalkyl, alkoxyalkyl, aryloxyalkyl, aralkoxyalkyl, alkylthio, thioalkyl, alkoxycarbonylamino, aryloxycarbonylamino, aralkyloxycarbonylamino, aminocarbonylamino, alkylaminocarbonylamino, dialkylaminocarbonylamino, alkylamidino, alkylguanidino, dialkylguanidino, hydrazino, hydroxylamino, carboxylic acid and its derivatives, sulfonic acids and its derivatives, phosphoric acid and its derivatives; or the adjacent groups like R₁ and R₂ or R₂ and R₃ or R₃ and R₄ or R₅ and R₆ or R₆ and R₇ or R₇ and R₈ together with carbon atoms to which they are attached may form a 5, 6, or 7 membered ring, which may further optionally contain one or more double bonds and/or one or more heteroatoms such as the group "Oxygen", "Nitrogen", "Sulfur" or "Selenium" and combinations of double bond and heteroatoms; or R₉ and R₁₀ or R₁₁ and R₁₂ together represent double bond attached to "Oxygen" or "Sulfur"; or R₉ and R₁₀ or R₁₁ and R₁₂ together with the carbon atoms to which they are attached may form a 3, 4, 5, or 6 membered ring, which may further optionally contain one or more double bonds, and/or one or more heteroatoms such as the group "Oxygen", "Nitrogen", "Sulfur" or "Selenium" and also includes combination of one or more double bonds with "heteroatoms", as above defined;

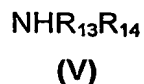
R₁₃ and R₁₄ may be same or different and each independently represents hydrogen, substituted or unsubstituted groups such as linear or branched (C₁-C₁₂)alkyl, (C₂-C₁₂)alkenyl, (C₂-C₁₂)alkynyl, (C₂-C₁₂)alkanoyl (C₃-C₇)cycloalkyl, (C₃-C₇)cycloalkenyl, bicycloalkyl, bicycloalkenyl, aryl, aralkyl, heteroaryl, heterocyclalkyl; optionally R₁₃ and R₁₄ along with the nitrogen atom, may form a 3, 4, 5, 6 or 7-membered heterocyclic ring, wherein the ring may be further substituted, and it may have either one, two or three double bonds or "additional heteroatoms", as defined above; and

"n" is an integer ranging from 1 to 8, preferably 1 to 4, and represents may be either linear or branched carbon chain; which comprises of reacting a compound of (IV) given below,



(IV)

wherein R_1 , R_2 , R_3 , R_4 , R_5 , R_6 , R_7 and R_8 are as defined above, with formaldehyde and a compound of formula (V) given below,

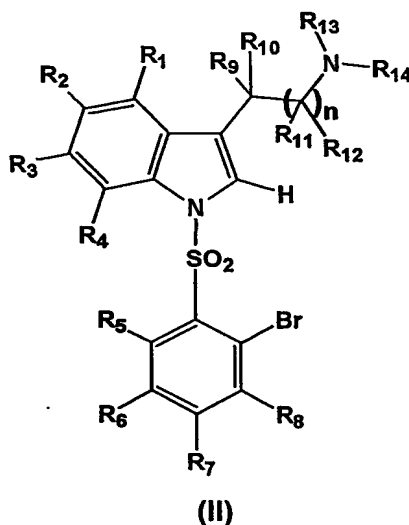


wherein R_{13} and R_{14} are as defined above.

22. A process for the preparation of compound of formula (I), which comprises of either chemically or catalytically reducing compounds containing $=\text{C}(\text{O})$ group/s in the side chain, to the corresponding $-\text{C}(\text{OH},\text{H})$ or $-\text{C}(\text{H},\text{H})$ compound.

23. A process according to Claim-19 to Claim-22, comprising of carrying out one or more of the following optional steps: i) removing any protecting group; ii) resolving the racemic mixture into pure enantiomers by the known methods and iii) preparing a pharmaceutically acceptable salt of a compound of formula (I) and/or iv) preparing a pharmaceutically acceptable prodrug thereof.

24. Novel intermediates defined by general formula (II),



wherein R_1 , R_2 , R_3 , R_4 , R_5 , R_6 , R_7 , R_8 , R_9 , R_{10} , R_{11} and R_{12} may be same or different and each independently represent hydrogen, halogen, oxo, thio, perhaloalkyl, hydroxy, amino, nitro, cyano, formyl, amidino, guanidino, substituted or unsubstituted groups such as linear or branched $(\text{C}_1\text{-C}_{12})$ alkyl, $(\text{C}_2\text{-C}_{12})$ alkenyl, $(\text{C}_2\text{-C}_{12})$ alkynyl, $(\text{C}_3\text{-C}_7)$ cycloalkyl, $(\text{C}_3\text{-C}_7)$ cycloalkenyl, bicycloalkyl, bicycloalkenyl, $(\text{C}_1\text{-C}_{12})$ alkoxy, cyclo $(\text{C}_3\text{-C}_7)$ alkoxy, aryl, aryloxy, aralkyl, aralkoxy, heterocyclyl, heteroaryl, heterocyclalkyl, heteroaralkyl, heteroaryloxy, heteroaralkoxy, heterocyclalkyloxy, acyl, acyloxy, acylamino, monoalkylamino,

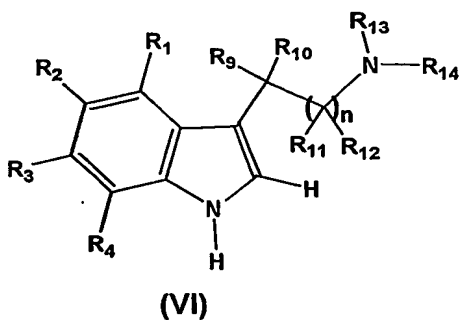
dialkylamino, arylamino, diarylamino, aralkylamino, alkoxycarbonyl, aryloxy carbonyl, aralkoxycarbonyl, heterocyclalkoxycarbonyl, heteroaryloxy carbonyl, hydroxyalkyl, aminoalkyl, monoalkylaminoalkyl, dialkylaminoalkyl, alkoxyalkyl, aryloxyalkyl, aralkoxyalkyl, alkylthio, thioalkyl, alkoxycarbonylamino, aryloxy carbonylamino, aralkyloxy carbonylamino, aminocarbonylamino, alkylaminocarbonylamino, dialkylaminocarbonylamino, alkylamidino, alkylguanidino, dialkylguanidino, hydrazino, hydroxylamino, carboxylic acid and its derivatives, sulfonic acids and its derivatives, phosphoric acid and its derivatives; or the adjacent groups like R₁ and R₂ or R₂ and R₃ or R₃ and R₄ or R₅ and R₆ or R₆ and R₇ or R₇ and R₈ together with carbon atoms to which they are attached may form a 5, 6, or 7 membered ring, which may further optionally contain one or more double bonds and/or one or more heteroatoms such as the group "Oxygen", "Nitrogen", "Sulfur" or "Selenium" and combinations of double bond and heteroatoms; or R₉ and R₁₀ or R₁₁ and R₁₂ together represent double bond attached to "Oxygen" or "Sulfur"; or R₉ and R₁₀ or R₁₁ and R₁₂ together with the carbon atoms to which they are attached may form a 3, 4, 5, or 6 membered ring, which may further optionally contain one or more double bonds, and/or one or more heteroatoms such as the group "Oxygen", "Nitrogen", "Sulfur" or "Selenium" and also includes combination of one or more double bonds with "heteroatoms", as above defined;

R₁₃ and R₁₄ may be same or different and each independently represents hydrogen, substituted or unsubstituted groups such as linear or branched (C₁-C₁₂)alkyl, (C₂-C₁₂)alkenyl, (C₂-C₁₂)alkynyl, (C₂-C₁₂)alkanoyl (C₃-C₇)cycloalkyl, (C₃-C₇)cycloalkenyl, bicycloalkyl, bicycloalkenyl, aryl, aralkyl, heteroaryl, heterocyclalkyl; optionally R₁₃ and R₁₄ along with the nitrogen atom, may form a 3, 4, 5, 6 or 7-membered heterocyclic ring, wherein the ring may be further substituted, and it may have either one, two or three double bonds or "additional heteroatoms", as defined above;

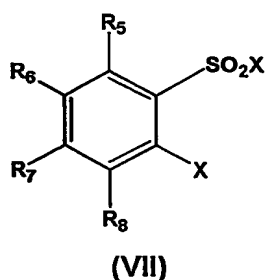
"n" is an integer ranging from 1 to 8, preferably 1 to 4, and represents either linear or branched carbon chain; and its stereoisomers and its salts.

25. A process provided for the preparation of novel intermediate of the general formula (II) according to any one of the routes,

Route - i) reacting a compound of formula (VI) given below,

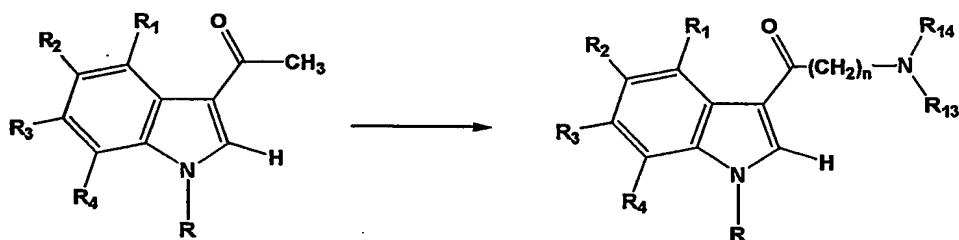


wherein R_1 , R_2 , R_3 , R_4 , R_9 , R_{10} , R_{11} , R_{12} , R_{13} and R_{14} are as defined earlier; with a compound of formula (VII)

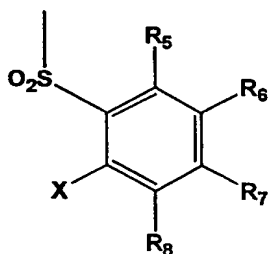


wherein R_5 , R_6 , R_7 and R_8 are as defined earlier and X is a halogen, preferably chloro, bromo or iodo;

Route - ii) according to the following route

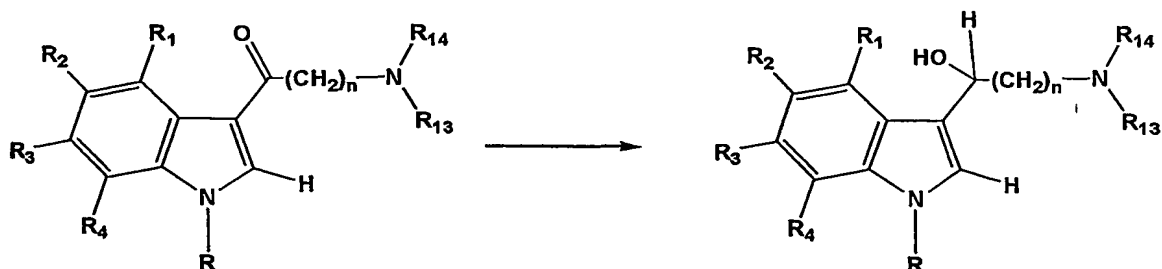


wherein R_1 , R_2 , R_3 , R_4 , R_{11} , R_{12} , R_{13} , R_{14} and n ($n \geq 2$) are as defined earlier; R represents either of hydrogen or a group such as,

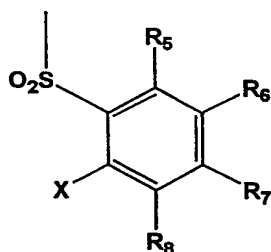


wherein X is halogen such as chloro, bromo or iodo; R_5 , R_6 , R_7 and R_8 are as defined earlier; in presence of amine hydrochloride and formaldehyde;

Route - iii) reducing another compound of formula (II) as follows,

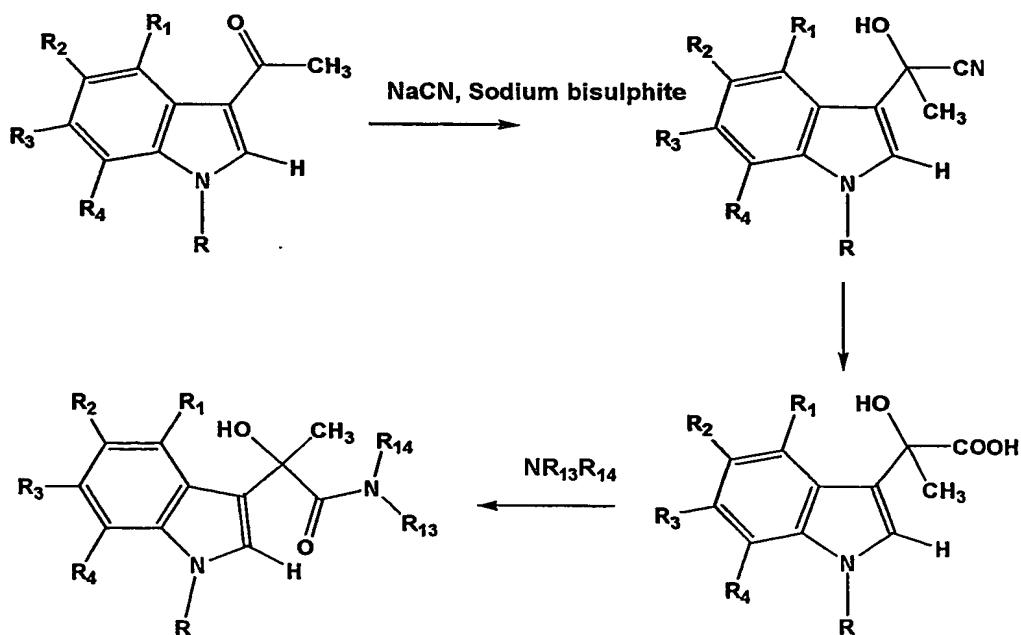


wherein R₁, R₂, R₃, R₄, R₁₁, R₁₂, R₁₃, R₁₄ and n (=2) are as defined earlier; R represents either of hydrogen or a group such as,

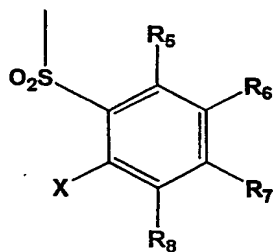


wherein X is halogen such as chloro, bromo or iodo; R₅, R₆, R₇ and R₈ are as defined earlier; by use of known various methods of either catalytic (for example, palladium/carbon), chemical (for example, sodium borohydride) or enzymatic reduction;

Route - iv) according to the following route,

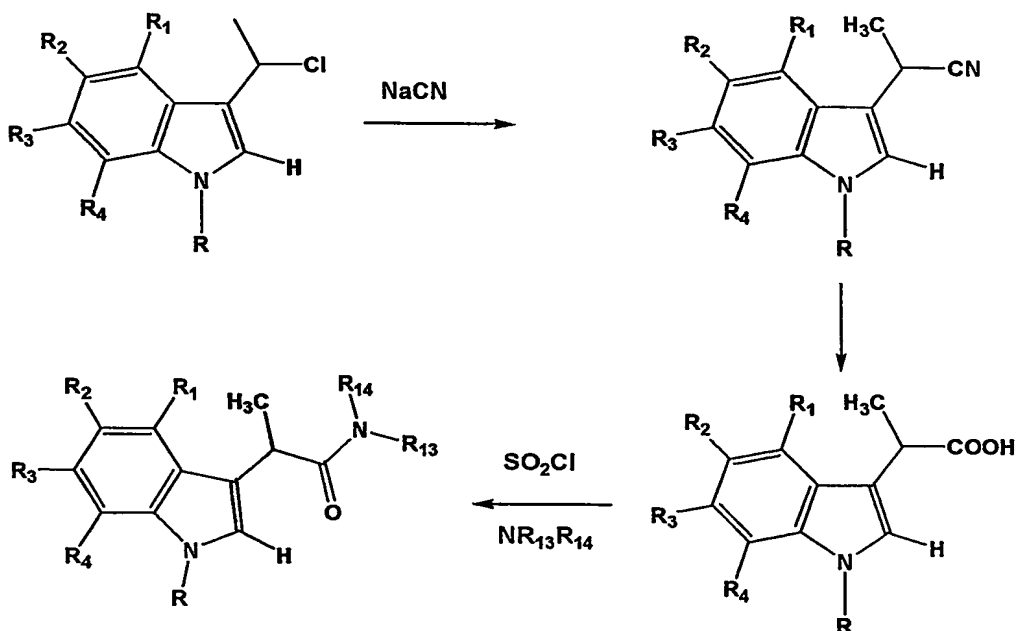


wherein R₁, R₂, R₃, R₄, R₁₁, R₁₂, R₁₃, R₁₄ and n are as defined earlier; R represents either of hydrogen or a group such as,

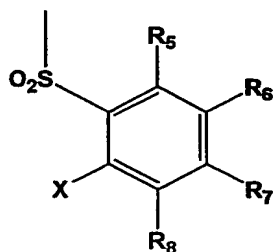


wherein X is halogen such as chloro, bromo or iodo; R₅, R₆, R₇ and R₈ are as defined earlier;

Route - v) according to the following route,

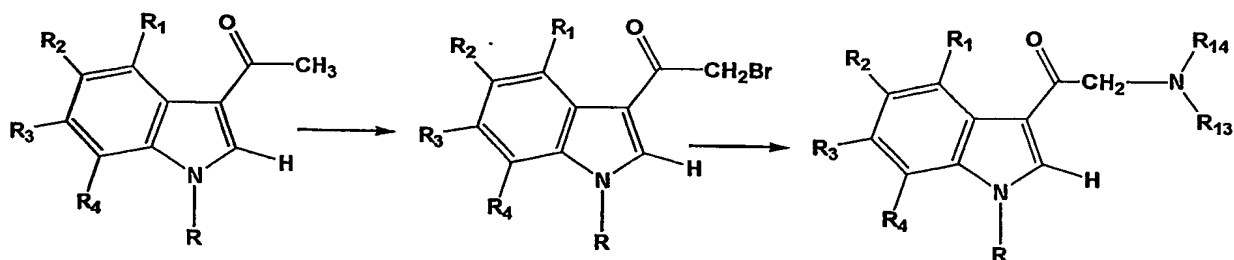


wherein R₁, R₂, R₃, R₄, R₁₁, R₁₂, R₁₃, R₁₄ and n are as defined in relation to formula (I); R represents either of hydrogen or a group such as,

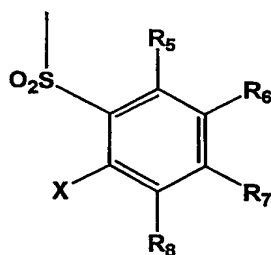


wherein X is halogen such as chloro, bromo or iodo; R₅, R₆, R₇ and R₈ are as defined earlier;

Route - vi) according to the following route,

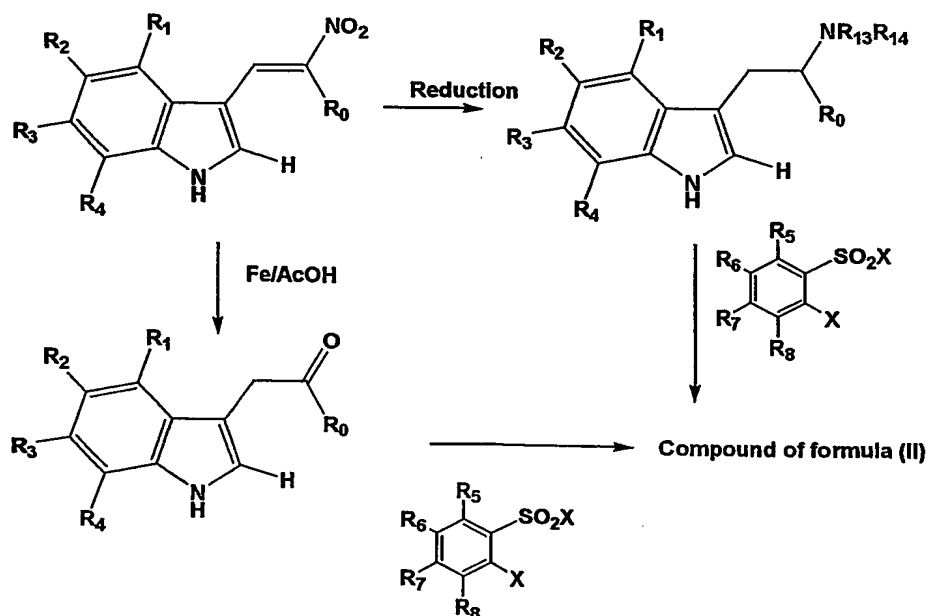


wherein $R_1, R_2, R_3, R_4, R_{11}, R_{12}, R_{13}, R_{14}$ and n are as defined earlier; R represents either of hydrogen or a group such as,



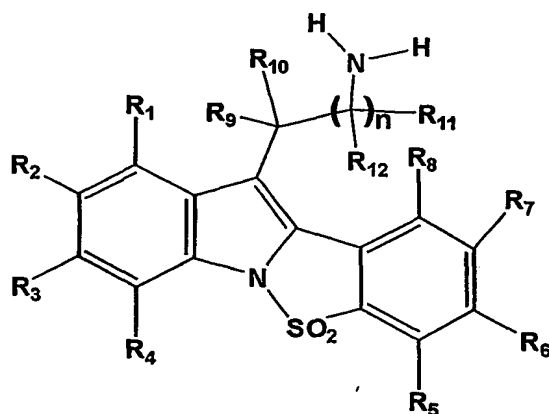
wherein X is halogen such as chloro, bromo or iodo; R_5, R_6, R_7 and R_8 are as defined earlier; and

Route - vii) according to the following route,



wherein $R_1, R_2, R_3, R_4, R_{11}, R_{12}, R_{13}, R_{14}$ and n ($=2$) are as defined earlier; R_0 is hydrogen or alkyl group.

26. Novel intermediates of general formula (III) are represented as given below,



(III)

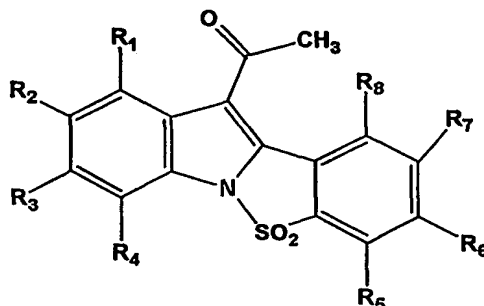
wherein R_1 , R_2 , R_3 , R_4 , R_5 , R_6 , R_7 , R_8 , R_9 , R_{10} , R_{11} and R_{12} may be same or different and each independently represent hydrogen, halogen, oxo, thio, perhaloalkyl, hydroxy, amino, nitro, cyano, formyl, amidino, guanidino, substituted or unsubstituted groups such as linear or branched (C_1-C_{12}) alkyl, (C_2-C_{12}) alkenyl, (C_2-C_{12}) alkynyl, (C_3-C_7) cycloalkyl, (C_3-C_7) cycloalkenyl, bicycloalkyl, bicycloalkenyl, (C_1-C_{12}) alkoxy, cyclo (C_3-C_7) alkoxy, aryl, aryloxy, aralkyl, aralkoxy, heterocyclyl, heteroaryl, heterocyclalkyl, heteroaralkyl, heteroaryloxy, heteroaralkoxy, heterocyclalkyloxy, acyl, acyloxy, acylamino, monoalkylamino, dialkylamino, arylamino, diarylamino, aralkylamino, alkoxycarbonyl, aryloxycarbonyl, aralkoxycarbonyl, heterocyclalkoxycarbonyl, heteroaryloxycarbonyl, hydroxyalkyl, aminoalkyl, monoalkylaminoalkyl, dialkylaminoalkyl, alkoxylalkyl, aryloxyalkyl, aralkoxyalkyl, alkylthio, thioalkyl, alkoxycarbonylamino, aryloxycarbonylamino, aralkyloxycarbonylamino, aminocarbonylamino, alkylaminocarbonylamino, dialkylaminocarbonylamino, alkylamidino, alkylguanidino, dialkylguanidino, hydrazino, hydroxylamino, carboxylic acid and its derivatives, sulfonic acids and its derivatives, phosphoric acid and its derivatives; or the adjacent groups like R_1 and R_2 or R_2 and R_3 or R_3 and R_4 or R_5 and R_6 or R_6 and R_7 or R_7 and R_8 together with carbon atoms to which they are attached may form a 5, 6, or 7 membered ring, which may further optionally contain one or more double bonds and/or one or more heteroatoms such as the group "Oxygen", "Nitrogen", "Sulfur" or "Selenium" and combinations of double bond and heteroatoms; or R_9 and R_{10} or R_{11} and R_{12} together represent double bond attached to "Oxygen" or "Sulfur"; or R_9 and R_{10} or R_{11} and R_{12} together with the carbon atoms to which they are attached may form a 3, 4, 5, or 6 membered ring, which may further optionally contain one or more double bonds, and/or one or more heteroatoms such as the group "Oxygen", "Nitrogen", "Sulfur" or "Selenium" and

also includes combination of one or more double bonds with "heteroatoms", as above defined.

"n" is an integer ranging from 1 to 8. It is preferred that n be 1 to 4. The carbon chains which "n" represents may be either linear or branched.

27. A process provided for the preparation of novel intermediate of the general formula (III) which comprises of cyclizing a suitable compounds of formula (II).

28. Novel intermediates defined of general formula (IV),

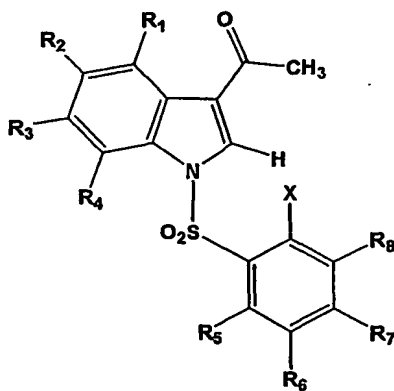


(IV)

wherein R_1 , R_2 , R_3 , R_4 , R_5 , R_6 , R_7 and R_8 are as may be same or different and each independently represent hydrogen, halogen, oxo, thio, perhaloalkyl, hydroxy, amino, nitro, cyano, formyl, amidino, guanidino, substituted or unsubstituted groups such as linear or branched (C_1-C_{12}) alkyl, (C_2-C_{12}) alkenyl, (C_2-C_{12}) alkynyl, (C_3-C_7) cycloalkyl, (C_3-C_7) cycloalkenyl, bicycloalkyl, bicycloalkenyl, (C_1-C_{12}) alkoxy, cyclo (C_3-C_7) alkoxy, aryl, aryloxy, aralkyl, aralkoxy, heterocyclyl, heteroaryl, heterocyclalkyl, heteroaralkyl, heteroaryloxy, heteroaralkoxy, heterocyclalkyloxy, acyl, acyloxy, acylamino, monoalkylamino, dialkylamino, arylamino, diarylamino, aralkylamino, alkoxycarbonyl, aryloxy carbonyl, aralkoxy carbonyl, heterocyclalkoxy carbonyl, heteroaryloxy carbonyl, hydroxyalkyl, aminoalkyl, monoalkylaminoalkyl, dialkylaminoalkyl, alkoxyalkyl, aryloxyalkyl, aralkoxyalkyl, alkylthio, thioalkyl, alkoxycarbonylamino, aryloxy carbonylamino, aralkyloxy carbonylamino, aminocarbonylamino, alkylaminocarbonylamino, dialkylaminocarbonylamino, alkylamidino, alkylguanidino, dialkylguanidino, hydrazino, hydroxylamino, carboxylic acid and its derivatives, sulfonic acids and its derivatives, phosphoric acid and its derivatives; or the adjacent groups like R_1 and R_2 or R_2 and R_3 or R_3 and R_4 or R_5 and R_6 or R_6 and R_7 or R_7 and R_8 together with carbon atoms to which they are attached may form a 5, 6, or 7 membered ring, which may further optionally contain one or more double bonds and/or one

or more heteroatoms such as the group "Oxygen", "Nitrogen", "Sulfur" or "Selenium" and combinations of double bond and heteroatoms; and R_9 and R_{10} here are represented as double bond attached to "Oxygen".

29. A process provided for the preparation of novel intermediate of the general formula (IV) which comprises of cyclizing compounds of formula (VIII)



wherein R_1 , R_2 , R_3 , R_4 , R_5 , R_6 , R_7 and R_8 are as defined above; using a $Pd(0)$ or $Pd(II)$ derivative as a catalyst.